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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/538,081	06/09/2005	Ernst H K Stelzer	2923-715	9229

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WASHINGTON, DC 20005

EXAMINER
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FINEMAN, LEE A

ART UNIT	PAPER NUMBER
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2872

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	01/24/2007	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 01/24/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

PTO-PAT-Email@rfem.com

# Office Action Summary

Application No.	Applicant(s)	
10/538,081	STELZER ET AL.	
Examiner	Art Unit	
Lee Fineman	2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 June 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/9/05, 10/19/05</u> | 6) <input type="checkbox"/> Other: ____  |

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement filed 9 June 2005 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. Although the patents listed in the "US patent documents" section were considered, the item listed in the "Non Patent Literature Documents" section of PTO-1449 has been lined through and not considered, as it was not supplied with the instant application.

### ***Drawings***

2. The drawings are objected to because reference characters are missing or cut off in fig. 3. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet"

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pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

3. The abstract of the disclosure is objected to because in line 8 “ech” is not a word.

Correction is required. See MPEP § 608.01(b).

4. The disclosure is objected to because of the following informalities: Page 1, line 5 and page 3, line 27 refer to “claim 1” which is inappropriate and should be removed. Reference to a general claim number could lead to confusion as claim 1 may change.

Appropriate correction is required.

### *Claim Objections*

5. Claim 9 is objected to because of the following informalities: the limitation “the light source” lacks antecedent basis. Appropriate correction is required.

### *Claim Rejections - 35 USC § 102*

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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7. Claims 1-3, 5, 8-9, 15-18, 21-23 and 24 are rejected under 35 U.S.C. 102(b) as being anticipated by Voie et al., "Orthogonal-plane fluorescence optical sectioning: three-dimensional imaging of macroscopic biological specimens", JOURNAL OF MICROSCOPY, vol. 170, Pt. 3, June 1993, pp. 229-236.

Regarding claims 1, 5, 16 and 24, Voie et al. disclose in fig. 2 a microscope having at least one illumination beam path (along the x-axis) and at least one detection beam path (along the z-axis), characterized in that each illumination beam path is provided with a focusing arrangement (cylindrical lens), including a cylindrical lens (fig. 2), for producing a two-dimensional object illumination region (see fig. 1) which extends in the direction of an illumination axis of the illumination beam path (on the x-axis), which is also a linear object region extending in the direction of an illumination axis of the illumination beam path (on the x-axis), and transversely thereto (on the y-axis), a detection direction (on the z-axis) of the at least one detection beam path is approximately orthogonal to the two-dimensional object illumination region (figs. 1 and 2), and a mobile arrangement (specimen holder, see page 232) is provided for producing a relative movement between the two-dimensional object illumination region and an object to be studied (see page 232, specimen holder section, especially lines 9-17).

Regarding claims 2, 3, 17-18 and 23, Voie et al. further disclose that the mobile arrangement (specimen holder) can produce a rotational movement of the object and/or a displacement movement of the object studied (see page 232, specimen holder section, especially lines 9-17); that the mobile arrangement is designed to move the object while the object illumination region is essentially stationary (see page 232, specimen holder section, especially lines 9-17); and that the at least one mobile arrangement is designed to move the object to be

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studied essentially in the direction of the detection direction (z-axis) of the at least one detection beam path (see page 232, specimen holder section, especially lines 9-17).

Regarding claims 8 and 9, Voie et al. further disclose that a light source (laser) is a lamp or a laser (fig. 2), which provides light of one or more wavelengths (see page 231, Illumination system section and page 232, Illumination optics section) and that scattered light or fluorescent light of one or more wavelengths is used (see page 231, Illumination system section and page 232, Illumination optics section).

Regarding claim 15, Voie et al. further disclose that the at least one detection beam path (along the z-axis) can be adapted so that the detection direction is approximately orthogonal to the two-dimensional object illumination region when the object illumination region is shifted (see page 233, alignment section and fig. 4; the detection beam path remains approximately orthogonal as the object illumination region is moved).

Regarding claims 21 and 22, Voie et al. further disclose that the at least one detection beam path (along the z-axis) has a detector (CCD camera) with a multiplicity of detector pixels (see page 233, calibration section) and that the number and positioning of the detector pixels of the detector are selected so that the at least one detection beam path projects a section of the object, illuminated by the at least one illumination beam path in the object illumination region, essentially fully onto the detector (see page 233, calibration section).

### ***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4, 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voie et al. in view of Horikawa, US 4,893,008.

Regarding claims 4 and 19, Voie et al. disclose the claimed invention except for wherein the mobile arrangement is designed to move the object illumination region while the object is essentially stationary. Horikawa teaches that a system that moves the object and a system that moves the illumination region are art-recognized equivalents in the microscope art (column 1, lines 28-35). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the above equivalent moving/scanning methods in the system of Voie et al. to effectively image the entire object.

Regarding claim 20, Voie et al. disclose the claimed invention except for wherein the at least one mobile arrangement is designed to move the at least one detection beam path in accordance with the movement of the at least one illumination beam path, at least in its region near the object. Horikawa further teaches in fig. 3 that a system that moves the illumination beam path (via 35) may also move the detection beam path (via 35 to detector 42) It would have been obvious to one of ordinary skill in the art at the time the invention was made to also provide movement of the one detection beam path as taught by Horikawa to provide higher contrast images because no diffused light comes from the area other than the light spot (Horikawa, column 1, lines 14-18).

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10. Claims 6 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voie et al. in view of Horikawa as applied to claims 4 and 5 above and further in view of Lee, US 2002/0163717 A1.

Voie et al. in view of Horikawa as applied to claims 4 and 5 above disclose the claimed invention except for explicitly stating that the cylindrical lens can be rotated about the illumination axis and/or displaced in the direction of the illumination axis and/or the cylinder axis, and/or can be tilted via the cylinder axis with respect to the illumination axis and the movement of the cylindrical lens is a high-frequency movement. Lee teaches in fig. 6 a scanning method wherein the cylindrical lens (206) can be rotated about the illumination axis and/or displaced in the direction of the illumination axis and/or the cylinder axis, and/or can be tilted via the cylinder axis with respect to the illumination axis (page 3, sections [0040]-[0042]) and the movement of the cylindrical lens is a high-frequency movement (relative to a slower moving motor system, see section [0042], lines 13-17). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the moving/scanning of the light beam be done by the displacement of the cylindrical lens as taught by Lee to provide a faster, more efficient scanning of the object (Lee, section [0042], lines 15-17).

11. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Voie et al. in view of Van Eijk et al., US 4,746,800.

Voie et al. further disclose that the object is to be held by a holder (specimen holder) in a sample chamber (see page 232, specimen holder section), in which it can be rotated about an axis (y-axis) and can be moved along at least one direction (see page 232, specimen holder section).



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Voie et al. disclose the claimed invention except for the holder being configured so that the object can be rotated around an axis corresponding essentially to the gravitational direction. Van Eijk et al. teaches an object holder which can be rotated around an axis corresponding essentially to the gravitational direction (see at least claim 8). It would have been obvious to one of ordinary skill in the art at the time the invention was made to have the object holder of Voie et al. be able to be rotated around an axis corresponding essentially to the gravitational direction as taught by Van Eijk et al. for the purpose of viewing different aspects of the object.

12. Claims 11-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Voie et al. in view of Stelzer et al., DE 4326473 A1.

Voie et al. disclose the claimed invention except for having at least two illumination beam paths with essentially opposite illumination directions are provided for producing at least locally overlapping two-dimensional object illumination regions and the illumination light of the two illumination beam paths interferes at least locally in the direction of the illumination axis in the region of the two-dimensional object illumination region and has a constant, adjustable phase. Stelzer et al. teach in figs. 1b and 3 a microscope system having at least two illumination beam paths (1) with essentially opposite illumination directions (figs. 1b and 3) are provided for producing at least locally overlapping two-dimensional object illumination regions (fig. 1b) and the illumination light of the two illumination beam paths interferes at least locally in the direction of the illumination axis in the region of the two-dimensional object illumination region and has a constant, adjustable phase (page 3, paragraphs 4-6 of machine translation). It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a

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second illumination beam path as taught by Stelzer et al. to the system of Voie et al. to provide a better dissolution of the image (Stelzer, page 3, paragraphs 4-6 of machine translation).

13. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Voie et al. in view of Palcic et al., US 4,700,298

Regarding claim 14, Voie et al. further disclose has a detector (fig. 2 camera). Voie et al. disclose the claimed invention except wherein the detector can be moved laterally with respect to the detection direction of the at least one detection beam path. Palcic et al. teach that a system that moves the object by a scanning stage and a system that scans by moving the detector laterally are art-recognized equivalents in the microscope art (column 2, lines 22-36). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use any of the above equivalent moving/scanning methods in the system of Voie et al. to effectively image the entire object.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lee Fineman whose telephone number is (571) 272-2313. The examiner can normally be reached on Monday - Friday 7:30 - 4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephone Allen can be reached on (571) 272-2434. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



LAF  
16 January 2007

  
MARK A. ROBINSON  
PRIMARY EXAMINER